



Theroux Environmental

February 14, 2005

Mr. Fernando Berton, Supervisor
Waste Prevention & Market Development
California Integrated Waste Management Board
10001 I St
Sacramento, CA 95814
Re: **CT Report to the Legislature**

Dear Mr. Berton,

I am pleased to submit herein, my comments to the February 2005 draft **Conversion Technologies Report to the Legislature** (herein, the Report).

I applaud the California Integrated Waste Management Board (CIWMB; "the Board") for in-depth draft report development, and for maintaining full public/private engagement during this challenging iterative process. It is the long-standing policy of CIWMB to work so closely with stakeholders, and the products resulting from this interaction truly reflect responsiveness to the varied and often diametrically opposed positions expressed. I feel this constitutes the essence of appropriate Governmental guidance.

California has the opportunity and the clear mandate to once again lead the nation in advancing integrated waste management and resource recovery. Leadership demands that we develop appropriate policies, regulatory infrastructure, environmental safe-guards, and public-private partnerships necessary to add Conversion Technologies implementation to our current complement of resource recovery methods. This bold stance must be balanced with utmost attention to detail in observance of the basic precautionary policy, "First, do no harm". We *will* move forward; we *must* do so with as much care as possible.

It is wholly understandable, therefore, that concerned stakeholders voice their uncertainty and demand due diligence. It is also completely appropriate that the State of California answer stakeholder concern by fully engaging the municipal and industrial interests determined to see these new tools put into practice. It is the Board's task to surround and support those efforts, (a) by making certain our Legislature is informed and actively participating, (b) by establishing monitoring-based third-party technologic validation through advanced research, development and demonstration, and (c) by integrating new regulatory permitting and enforcement parameters with existing state-wide programs as an "environmental safety net" pertinent to these new opportunities and challenges. This draft report is an excellent start.

I stand ready to assist the Board and staff as needed in this effort, and to answer any questions that might arise from these comments.

Sincerely,

Michael Theroux

Conversion Technology Report to the Legislature February 2005 CIWMB Draft

Legislative Audience

We are faced again with presenting an incredibly complex topic that must somehow be reduced to core concepts. Although hundreds of stakeholders from diverse backgrounds continue to take part in the Board's advancement of Conversion Technology assessment and application, this Report is intended for a very specific audience: the California Legislature. Considering the immense volume of difficult material constantly threatening to overwhelm our legislative representatives, even the Executive Summary is probably too complex for quick comprehension. This draft lacks a clear outline of concepts. Detail is absolutely mandatory, but the necessary background material should be consigned to multiple Appendices, with abundant reference to additional materials outside the test.

A brief *Introduction with Summary & Recommendations* seems an appropriate structure for a beginning statement.

Report Mandate

AB 2770 is clear, regarding the content of this Report. That mandate is expressed on Page 14 of the draft document; it should be the first statement of content encountered. It is imperative that the Legislature be able to quickly find specific chapters dedicated to each of the four elements of required content, and subsequently have appendices and references to outside materials as their staffs delve deeper into these complex issues. Similarly, material extraneous to the four mandated areas of content should be held as separate supportive documentation, or left to future discussions.

Scope of Technologies Addressed

There is no requirement, nor is there an expectation, that this Report on Conversion Technologies (CTs) address *all* technical approaches to the conversion of waste into products and energy. AB 2770 focused on "non-combustive thermal conversion". This should be clearly reflected as the Report scope at the onset, with reference made to other sources of information and policies pertinent to technologies yet *not* addressed in context of this AB 2770 mandate.

Anaerobic Digestion (AD) certainly can be considered a technical approach for the conversion of organic wastes and bi-products into fuels, chemicals and ultimately, energy. Yet the Board chose months ago¹ to assign consideration of AD as a topic under the context of "composting", and excluded this entire group of technologies from the current AB 2770 assessment. AD technologies were *not* addressed during the contractual Life Cycle and Market Development assessments. If it is true that advanced, large scale anaerobic digestion technologies have their place in converting fractions of municipal solid waste into products, and thereby recovering valuable resources in the same was as other CTs, it is also true that modifications to existing Composting regulations will probably be needed to encompass this suite of waste management options. A comment to that effect should suffice, for this Report.

¹ CIWMB Staff report, December 14-15, 2004.

Waste Management Hierarchy - Disposal vs Recovery

AB 2770 begins with an erroneous premise that a facility utilizing non-combustive thermal conversion of waste-derived feedstock to create clean burning fuels and other products is, of permitting necessity, a “disposal facility”. Conversion does not equate to disposal logistically and should not in law, but is instead should be viewed as an efficient form of resource recovery; this perspective is recognized world-wide. The current incongruity stems from lack within our current waste management hierarchy of a management preference tier inclusive of all forms of “recovery”.

The results of this misidentification of conversion as a form of disposal are far-reaching: as encoded, conversion facilities must be incorporated in a jurisdiction’s “Disposal Facility Siting Element” rather than be included in a “Non-Disposal Siting Element”. Difficulties have arisen in development of a regulatory package applicable for conversion, particularly at the juncture between disposal and beneficial use. Assessment of cost/benefit and life-cycle impacts first measured conversion against disposal, rather than other forms of resource recovery.

This error has been encoded as law, and as such must be addressed and amended as a legislative question. It is therefore most appropriate that the Report tightly focus on this basic concern and recommend specific changes to amend the code.

Performance vs Prescriptive Standards

AB 2770 grouped a broad continuum of thermal conversion technologies under the broad category of “gasification”, rather than retaining the terminology expressed in its sister bill, SB 1038, as “waste conversion”. The encoded language further confused the issue by stipulating a series of seven “performance criteria” mandatory for agency approval of industrial CT operation. Technical inaccuracies and misguided strictures in AB 2770 have now amended our Public Resource Code; it is the Legislature that must address such error with “clean-up” language. The Report should clearly state that these “zero tolerance” stipulations are not *performance standards* in the spirit of requiring compliance with existing state and federal law and regulation, but are instead *prescriptive stipulations* creating conditions under which few if any industrial operations could comply.

Toxic Emissions: Current Understanding

One of the most difficult issues faced when considering Conversion Technology advancement relates to the underlying perception that these systems may actually be nothing more than “incinerators” by another name, with all the same old problems attendant regarding toxic emissions releases. Confusion and concern has been repeatedly expressed regarding the lack of recognized assessment methods, establishment of safety levels and clarification of the mechanisms of toxin generation. A good part of this uncertainty stems from an “in limbo” federal regulatory status and policies for dioxin and related compounds.

The US Environmental Protection Agency (EPA) is nearing the end of a lengthy reassessment of risks, analytical methods, policies and standards related to the congeners of dioxin. Initial work around 1990 identified incineration of municipal solid waste as being among the most damaging contributors to the creation of Persistent Organic Pollutants (POPs), with the congeners of dioxin representing four forms of the top twelve toxins listed. EPA has submitted

their draft reassessment to the National Academy of Sciences (NAS), under the auspices of the NAS Board on Environmental Studies and Toxicology (BEST).² The NAS project titled “**Review of EPA’s Assessment of the Health Implications of Exposure to Dioxins**,” began in June 2004, with completion expected late this year.

With AB 2770, we are attempting to draw a bright line between “Incineration” and “Conversion”: given the best we as a society can determine, can conversion technologies act as a *mitigative measure* to significantly improving our environmental management? Our approach must not be to simply wait until this study is completed, but to enjoin the federal specialists.

Stakeholder and Board alike now recognize that additional human health risk assessment needs to be undertaken, and that actual data must be accumulated upon which to base our policies and regulations. Demonstration facilities are under consideration; scientific teams have already been engaged and have gone far toward establishing a basic understanding. It is wholly appropriate that early projects evincing this level of global concern be surrounded by state and federal oversight, and that they require external technology validation by the vast testing and assessment resources available to governmental agencies. For this level of state-federal interaction, we need first to have full Legislative understanding and support. This Report must carry the import of the concern, and elicit from our Legislative body the appropriate response.

Conclusion & Recommendations

From the volumes of information generated during this on-going work must emerge a concise, focused statement to our Legislature. The Report must specifically address those issues most within the Legislative purview:

- Clarify definitions and outline technologic scope to be considered as “Thermal Conversion”,
- Identify and explain inaccuracies in encoded language, suggesting corrections to technical errors, and
- Recommend policy that will establish and perpetuate California’s leadership position, for advancement of resource recovery through implementation of Conversion Technologies.

² See <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=87843>, for a statement of EPA’s current dioxin reassessment program. Includes links to four very short and concise summary documents.